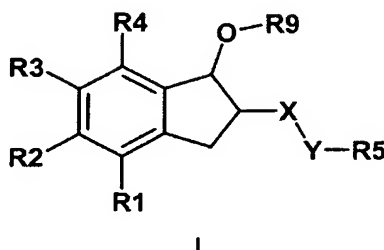


CLAIMS

What is claimed is:

1. A compound of the formula I,



in which

R1, R2, R3, R4 independently of one another are H, F, Cl, Br, I, CN; N₃, NO₂, OH, O(C₁-C₈)-alkyl, O(C₃-C₈)-cycloalkyl, O-CH₂-phenyl, O-phenyl, O-CO-(C₁-C₈)-alkyl, O-CO-(C₃-C₈)-cycloalkyl, S(O)₀₋₂(C₁-C₈)-alkyl, S(O)₀₋₂(C₃-C₈)-cycloalkyl, NH₂, NH-(C₁-C₈)-alkyl, NH-(C₃-C₈)-cycloalkyl, N[(C₁-C₈)-alkyl]₂, N[(C₃-C₈)-cycloalkyl]₂, NH-CO-(C₁-C₈)-alkyl, NH-CO-(C₃-C₈)-cycloalkyl; SO₃H, SO₂-NH₂, SO₂-NH-(C₁-C₈)-alkyl, SO₂-NH-(C₃-C₈)-cycloalkyl, NH-SO₂-NH₂, NH-SO₂-(C₁-C₈)-alkyl, NH-SO₂-(C₃-C₈)-cycloalkyl, O-CH₂-COOH, O-CH₂-CO-O(C₁-C₈)-alkyl, O-CH₂-COOH, O-CH₂-CO-O(C₁-C₈)-alkyl, COOH, CO-O(C₁-C₈)-alkyl, CO-O-(C₃-C₈)-cycloalkyl, CO-NH₂, CO-NH(C₁-C₈)-alkyl, CO-N[(C₁-C₈)-alkyl]₂; (C₁-C₈)-alkyl, (C₃-C₈)-cycloalkyl, (C₂-C₈)-alkenyl, (C₂-C₈)-alkynyl, wherein the alkyl, alkenyl and alkynyl groups in each case one to seven hydrogen atoms may be replaced by fluorine, or one hydrogen may be replaced by OH, OC(O)CH₃, O-CH₂-Ph, NH₂, NH-CO-CH₃ or N(COOCH₂Ph)₂; phenyl, 1- or 2-naphthyl, 5-tetrazolyl, 1-((C₁-C₆)-alkyl)-5-tetrazolyl, 2-((C₁-C₆)-alkyl)-5-tetrazolyl, 1-imidazolyl,

1- or 4-[1,2,4]-triazolyl,
2- or 3-thienyl,
2- or 3-furyl,
2-, 3- or 4-pyridyl,
2-, 4- or 5-oxazolyl,
3-, 4- or 5-isoxazolyl,
2-, 4- or 5-thiazolyl,
3-, 4- or 5-isothiazolyl,

where the aryl radical or heterocycle may be substituted up to two times by
F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, O-(C₁-C₄)-alkyl, S(O)₀₋₂(C₁-C₆)-alkyl, NH₂,
NH-SO₂-(C₁-C₄)-alkyl, COOH, CO-O-(C₁-C₄)-alkyl, CO-NH₂ and wherein the alkyl
groups one to seven hydrogen atoms may be replaced by fluorine;

or R₂ and R₃ together form the group -O-CH₂-O-

X is S, SO, or SO₂;

Y is (CH₂)_p, where p may be 0, 1, 2 or 3;

R₅ is CF₃, (C₁-C₁₈)-alkyl, or (C₃-C₈)-cycloalkyl, wherein the alkyl groups
one to seven hydrogen atoms may be replaced by fluorine;

(CH₂)_r-COR₆, where r=1-6 and R₆ may be OH, O-(C₁-C₆)-alkyl or
NH₂;

CH₂-CH(NHR₇)-COR₈, where R₇ may be H or C(O)-(C₁-C₄)-alkyl and
R₈ may be OH, O-(C₁-C₆)-alkyl or NH₂; or

phenyl, 1- or 2-naphthyl, biphenyl or a heterocyclic radical, where the
rings or ring systems may be substituted up to two times by
F, Cl, Br, I, CN, OH, O(C₁-C₈)-alkyl, O(C₃-C₈)-cycloalkyl, O-CO-

(C₁-C₈)-alkyl, O-CO-(C₃-C₈)-cycloalkyl, S(O)₀₋₂(C₁-C₈)-alkyl, S(O)₀₋₂(C₃-C₈)-cycloalkyl, NH₂, NH-(C₁-C₈)-alkyl, NH-(C₃-C₈)-cycloalkyl, N[(C₁-C₈)-alkyl]₂, N[(C₃-C₈)-cycloalkyl]₂, NH-CO-(C₂-C₈)-alkyl, NH-CO-(C₃-C₈)-cycloalkyl; SO₃H, SO₂-NH₂, SO₂-NH-(C₁-C₈)-alkyl, SO₂-NH-(C₃-C₈)-cycloalkyl; NH-SO₂-NH₂, NH-SO₂-(C₁-C₈)-alkyl, NH-SO₂-(C₃-C₈)-cycloalkyl, O-CH₂-COOH, O-CH₂-CO-O(C₁-C₈)-alkyl, COOH, CO-O(C₁-C₈)-alkyl, CO-O-(C₃-C₈)-cycloalkyl, CO-NH₂, CO-NH(C₁-C₈)-alkyl, CO-N[(C₁-C₈)-alkyl]₂, (C₁-C₈)-alkyl, or (C₃-C₈)-cycloalkyl, wherein the alkyl groups in each case one to seven hydrogen atoms may be replaced by fluorine;

R9 is (C₁-C₁₂)-alkyl, or (C₃-C₈)-cycloalkyl, wherein the alkyl radicals one to seven hydrogen atoms may be replaced by fluorine;
CO-O(C₁-C₆)-alkyl, CO-O(C₃-C₈)-cycloalkyl, C(O)-(C₁-C₈)-alkyl, C(O)-(C₃-C₈)-cycloalkyl, C(O)-phenyl, C(O)-CH(NHR₁₂)-(C₁-C₈)-alkyl, phenyl, 1- or 2-naphthyl, biphenyl, 2-, 3- or 4-pyridyl, where the aryl or heteroaryl radicals may be substituted up to two times by F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, O-(C₁-C₄)-alkyl, S(O)₀₋₂(C₁-C₆)-alkyl, NH₂, NH-SO₂-(C₁-C₄)-alkyl, -CH₂-COOH, O-CH₂-CO-O(C₁-C₈)-alkyl, COOH, CO-O-(C₁-C₄)-alkyl, CO-NH₂;
(CH₂)-R₁₀;
(CH₂)_s-R₁₁, where s = 2 or 3;

R10 is (C₁-C₁₂)-alkyl, or (C₃-C₈)-cycloalkyl, wherein the alkyl radicals one to seven hydrogen atoms may be replaced by fluorine;
COOH, CONH₂, CO-O(C₁-C₆)-alkyl, CO-O(C₃-C₈)-cycloalkyl;
phenyl, 1- or 2-naphthyl, biphenyl, 2-, 3- or 4-pyridyl, 2- or 3-furyl or 2- or 3-thienyl, where the aryl or heteroaryl radicals may be substituted up to two times by
F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, O-(C₁-C₄)-alkyl, S(O)₀₋₂(C₁-C₆)-alkyl, NH₂, NH-SO₂-(C₁-C₄)-alkyl, O-CH₂-COOH, O-CH₂-CO-

O(C₁-C₈)-alkyl, COOH, CO-O-(C₁-C₄)-alkyl, CO-NH₂;

R11 is (C₁-C₁₂)-alkyl, or (C₃-C₈)-cycloalkyl, wherein the alkyl radicals one to seven hydrogen atoms may be replaced by fluorine;
COOH, CONH₂, CO-O(C₁-C₆)-alkyl, CO-O(C₃-C₈)-cycloalkyl;
phenyl, 1- or 2-naphthyl, biphenyl, 2-, 3- or 4-pyridyl, 2- or 3-furyl,
2- or 3-thienyl or 1-imidazolyl,
where the aryl or heteroaryl radicals may be substituted
up to two times by
F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, O-(C₁-C₄)-alkyl, S(O)₀₋₂(C₁-C₆)-
alkyl, NH₂, NH-SO₂-(C₁-C₄)-alkyl, O-CH₂-COOH, O-CH₂-CO-
O(C₁-C₈)-alkyl, COOH, CO-O-(C₁-C₄)-alkyl, or CO-NH₂;

R12 is H, or C(O)-(C₁-C₆)-alkyl;

and their physiologically acceptable salts.

2. The compound of formula 1, as claimed in claim 1 wherein

R1, R4 independently of one another are H, F, Cl, Br, N₃, O(C₁-C₈)-alkyl, or (C₁-C₈)-alkyl and wherein the alkyl groups one to seven hydrogen atoms may be replaced by fluorine;

R2, R3 independently of one another are H, F, Cl, Br, N₃, O(C₁-C₈)-alkyl, or (C₁-C₈)-alkyl and wherein the alkyl groups one to seven hydrogen atoms may be replaced by fluorine;

wherein each case at least one of the radicals R1, R2, R3 and R4 is different from hydrogen;

X is S, SO, or SO₂;

Y is $(CH_2)_p$, where p can be 0, 1, 2 or 3;

R5 is (C_1-C_{18}) -alkyl; $(C_3-C_4$ - or $C_6-C_8)$ -cycloalkyl, wherein the alkyl groups one to seven hydrogen atoms may be replaced by fluorine;

$(CH_2)_r$ -COR6, where r = 1-6 and R6 can be OH, O- (C_1-C_6) -alkyl or NH_2 ;

$CH_2-CH(NHR_7)$ -COR8, where R7 can be H or C(O)- (C_1-C_6) -alkyl and R8 can be OH, O- (C_1-C_6) -alkyl or NH_2 ; or

phenyl, 1- or 2-naphthyl, biphenyl or a heterocyclic radical, where the rings or ring systems may be substituted up to two times by O- (C_1-C_8) -alkyl, O- (C_3-C_8) -cycloalkyl, O-CO- (C_1-C_8) -alkyl, O-CO- (C_3-C_8) -cycloalkyl, S(O)₀₋₂- (C_1-C_8) -alkyl, S(O)₀₋₂- (C_3-C_8) -cycloalkyl, NH_2 , NH- (C_1-C_8) -alkyl, NH- (C_3-C_8) -cycloalkyl, N[(C_1-C_8) -alkyl]₂, N[(C_3-C_8) -cycloalkyl]₂, NH-CO- (C_2-C_8) -alkyl, NH-CO- (C_3-C_8) -cycloalkyl; SO_3H ; SO_2-NH_2 , $SO_2-NH-(C_1-C_8)$ -alkyl, $SO_2-NH-(C_3-C_8)$ -cycloalkyl; NH- SO_2-NH_2 ; NH- $SO_2-(C_1-C_8)$ -alkyl, NH- $SO_2-(C_3-C_8)$ -cycloalkyl; O- CH_2-COOH , O- $CH_2-CO-O-(C_1-C_8)$ -alkyl, $COOH$, CO-O- (C_1-C_8) -alkyl, CO-O- (C_3-C_8) -cycloalkyl, CO- NH_2 , CO-NH- (C_1-C_8) -alkyl, CO-N[(C_1-C_8) -alkyl]₂; (C_1-C_8) -alkyl, or (C_3-C_8) -cycloalkyl, where in the alkyl groups in each case one to seven hydrogen atoms may be replaced by fluorine;
F, Cl, Br, I, CN;

R9 is (C_1-C_{12}) -alkyl, (C_3-C_8) -cycloalkyl, wherein the alkyl radicals one to seven hydrogen atoms may be replaced by fluorine;
CO-O- (C_1-C_6) -alkyl, CO-O- (C_3-C_8) -cycloalkyl, C(O)- (C_1-C_8) -alkyl, C(O)- (C_3-C_8) -cycloalkyl, C(O)-phenyl, C(O)-CH(NHR12)- (C_1-C_8) -alkyl, phenyl, 1- or 2-naphthyl, biphenyl, 2-, 3- or 4-pyridyl, where the aryl

or heteroaryl radicals may be substituted up to two times by F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, O-(C₁-C₄)-alkyl, S(O)₀₋₂(C₁-C₆)-alkyl, NH₂, NH-SO₂-(C₁-C₄)-alkyl, -CH₂-COOH, O-CH₂-CO-O(C₁-C₈)-alkyl, COOH, CO-O-(C₁-C₄)-alkyl, or CO-NH₂;
(CH₂)-R10;
(CH₂)_s-R11, where s = 2 or 3;

- R10 is (C₁-C₁₂)-alkyl, or (C₃-C₈)-cycloalkyl, wherein the alkyl radicals one to seven hydrogen atoms may be replaced by fluorine;
COOH, CONH₂, CO-O(C₁-C₆)-alkyl, CO-O(C₃-C₈)-cycloalkyl;
phenyl, 1- or 2-naphthyl, biphenyl, 2-, 3- or 4-pyridyl, 2- or 3-furyl or 2- or 3-thienyl, where the aryl or heteroaryl radicals may be substituted up to two times by
F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, O-(C₁-C₄)-alkyl, S(O)₀₋₂(C₁-C₆)-alkyl, NH₂, NH-SO₂-(C₁-C₄)-alkyl, O-CH₂-COOH, O-CH₂-CO-O(C₁-C₈)-alkyl, COOH, CO-O-(C₁-C₄)-alkyl, CO-NH₂;
- R11 is (C₁-C₁₂)-alkyl, (C₃-C₈)-cycloalkyl, wherein the alkyl radicals one to seven hydrogen atoms may be replaced by fluorine;
COOH, CONH₂, CO-O(C₁-C₆)-alkyl, CO-O(C₃-C₈)-cycloalkyl;
phenyl, 1- or 2-naphthyl, biphenyl, 2-, 3- or 4-pyridyl, 2- or 3-furyl, 2- or 3-thienyl or 1-imidazolyl,
where the aryl or heteroaryl radicals may be substituted up to two times by
F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, O-(C₁-C₄)-alkyl, S(O)₀₋₂(C₁-C₆)-alkyl, NH₂, NH-SO₂-(C₁-C₄)-alkyl, O-CH₂-COOH, O-CH₂-CO-O(C₁-C₈)-alkyl, COOH, CO-O-(C₁-C₄)-alkyl, CO-NH₂;
- R12 is H, or C(O)-(C₁-C₆)-alkyl;

and their physiologically acceptable salts.

3. The compound of formula I, as claimed in claim 1 in which

R1, R4 independently of one another are H, F, Cl, Br, N₃, O(C₁-C₈)-alkyl, or (C₁-C₈)-alkyl and wherein the alkyl groups one to seven hydrogen atoms may be replaced by fluorine;

R2, R3 independently of one another are H, F, Cl, Br, N₃, O(C₁-C₈)-alkyl, or (C₁-C₈)-alkyl and wherein the alkyl groups one to seven hydrogen atoms may be replaced by fluorine;

where in each case at least one of the radicals R1, R2, R3 and R4 is different from hydrogen;

X is S, SO, or SO₂;

Y is (CH₂)_p, where p is 0 or 1;

R5 is (C₁-C₈)-alkyl, wherein the alkyl groups one to seven hydrogen atoms may be replaced by fluorine;
phenyl, where the phenyl radical may be substituted up to two times by F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, or O-(C₁-C₄)-alkyl;

R9 is (C₁-C₁₂)-alkyl, wherein the alkyl radicals one to seven hydrogen atoms may be replaced by fluorine;
CO-O(C₁-C₆)-alkyl, CO-O(C₃-C₈)-cycloalkyl, C(O)-(C₁-C₈)-alkyl, C(O)-(C₃-C₈)-cycloalkyl, or C(O)-phenyl, where the phenyl radical may be substituted up to two times by F, Cl, Br, CN, OH, (C₁-C₄)-alkyl, CF₃, O-(C₁-C₄)-alkyl, S(O)₀₋₂(C₁-C₆)-alkyl, NH₂, NH-SO₂-(C₁-C₄)-alkyl-CH₂-COOH, O-CH₂-CO-O(C₁-C₈)-alkyl, COOH, CO-O-(C₁-C₄)-alkyl, or CO-NH₂;

and their physiologically acceptable salts.

4. A pharmaceutical composition comprising an effective amount of a compound of formula I as claimed in claim 1, and a pharmaceutically acceptable carrier thereof.

5. The pharmaceutical composition according to claim 4, further comprising one or more active compounds suitable for reducing weight or for the treatment of obesity.

6. The pharmaceutical composition according to claim 4, further comprising one or more of the agents selected from the group consisting of cathine, phenylpropanolamine, amfepramone, mefenorex, ephedrine, leptin, dexamphetamine, amphetamine, fenfluramine, dexfenfluramine, sibutramine, orlistat, mazindol or phentermine and their salts.

7. A method for the treating obesity, comprising administering to a subject in need thereof, an effective amount of a compound according to formula I as claimed in claim 1.

8. A method of reducing weight in a mammal, comprising administering to said mammal an effective amount of a compound of formula I as claimed in claim 1.

9. A method of maintaining weight loss, comprising administering to a subject in need thereof, an effective amount of a compound of formula I as claimed in claim 1.

10. The method of claim 9, further comprising administering one or more active compounds for reducing weight in mammals.